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EXAMINER	
YEH, EUENG NAN	

ART UNIT	PAPER NUMBER
2624	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/823,330	OHIRA, TADASHI	
	Examiner	Art Unit	
	EUENG-NAN YEH	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *1-6,10,11,13-18,20,21 and 23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7-9,12,19,22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

FINAL ACTION

Response to Amendment

1. The following Office Action is responsive to the amendment and remarks received on August 20, 2009. Claims 7-9, 12, 19, and 22 remain pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7 (and therefore claims 8, 9, and 12 by dependency), 19, and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There are insufficient antecedent basis for the following limitation(s):

Claims 7, 19, and 22 recites the limitation for the second coding unit: "decoding on the image data encoded by said first coding unit in an **intercoding** mode". However, the first coding unit "coding said frequency components in an **intracoding** mode".

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 7-9, 12, 19, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Hannuksela et al. (US 2001/0040700 A1), Klein Gunnewiel et al. (US 2003/0086622 A1), and Lee (US 2003/0156198 A1).

Regarding claims 7 (apparatus), 19 (method), and 22 (computer-readable medium), Hannuksela discloses a data process system comprising:

- input image data (as depicted in figure 3, numeral 101 “an input 101 for receiving a video signal from a camera or video source (not shown) of the terminal 1” in paragraph 46, line 3);

- first coding unit configured to encode the input image data by transforming the input image data into frequency components in units of blocks and coding said frequency components in an intracoding mode (“Block layer data consist of uniformly quantised discrete cosine transform coefficients, which are scanned in zigzag order, processed with a run-length encoder and coded with variable length codes. MPEG-2 and MPEG-4 layer hierarchies resemble the one in H.263” in paragraph 15, line 1. As depicted in figure 3, numerals 102, 103, and 104 “[a] switch 102 switches the encoder between an INTRA-mode of coding and an INTER-mode. The encoder part 100 of the video codec 10 comprises a DCT transformer 103, a quantiser 104 …” in paragraph 46, line 4. Thus, blocks 102-104 are the first coding unit and the first coding unit is capable

to code the frequency components not only in an intracoding mode but also in an intercoding mode);

- second coding unit configured to encode the input image data using reference data which is obtained by performing local decoding on the image data encoded by said first coding unit in an interceding mode (as depicted in figure 3, numerals 108, 109, and 110 represent the second coding unit to perform local decoding such as Q^{-1} and IDCT etc. on the output of the first coding output which can be in an intercoding mode as discussed in the first coding unit. The second coding unit will generate reference data after #110 and store it in picture store #107 and use it to encode the input image data, i.e. #101, at numeral 106);

- a storing unit configured to store the reference data (as depicted in figure 3, numeral 107);

- a multiplexing unit configured to output a stream of multiplexed data obtained by storing the pseudo-coded reference data into a user data area in a video plane object in a stream of the image data encoded by the first coding unit in a case where the coding is performed in the intercoding mode, and to output a stream of data in which the pseudo-coded reference data is not stored in a case where the coding is performed in the intracoding mode (“Encoders can use this indicator to instruct decoders which pictures resemble the current motion compensation reference picture so well that one of them can be used as a spare reference picture if the actual reference picture is lost during transmission … This "spare" reference picture may be used by a decoder to decode the current frame if the default reference picture is lost for some reason. The

spare reference picture number may be in respect of the whole picture or part of a picture. In the former case, typically the spare reference picture number is included in a picture header. In the latter case the spare reference picture number is included in the picture segment headers or macroblock headers of the picture. In a preferred implementation of the invention, the video signal is encoded according to the H.263 standard and the indicator is included in the Supplemental Enhancement Information" in paragraphs 19-20. See also, "Thus an indicator is provided for forwardly predicted frames not for backwardly predicted frames" in paragraph 22, line 1. Wherein this forwardly predicted frames are applicable to intercoding frames. Thus, for intracoding mode, there is no spare reference picture needed to output data stream. For intercoding mode, spare reference picture data used to represent the lost reference picture are multiplexed output data stream in the picture header, the picture segment headers or macroblock headers of the first coding unit. As shown in figure 2, numeral 50 is a multiplexing unit).

Hannuksela does indicate the need of spare reference picture for the intercoding mode as discussed above. Hannuksela does not explicitly disclose the spare reference picture, i.e. pseudo-coded reference data, with frequency components and the switching unit for the intercoding mode. Furthermore, Hannuksela does not explicitly teach the frequency limitation.

Klein Gunnewiek, in the same field of endeavor of video encoder ("particularly to a video encoder which uses efficient spatial scalable compression" in paragraph 1, line 2), teaches an scalable enhancement codec as depicted in figure 3, ENH-ENCODER

314 based on local decoding #338 (inverse quantization, IQ), #340 (inverse DCT, IDCT), and #348 on the input image data coded by first coding means such as #330 (DCT) and # 332 (Q) or first coding means from Hannuksela figure 3 #103 (DCT) and #104 (Q) to obtain the reconstructed image data, which can also be the stored reference data, and then perform second coding such as #368 (DCT) and #370 (Q) under the bitrate controller #374. As depicted in Klein Gunnewiek figure 3, numeral 366 is the switching to output enhancement data, i.e. pseudo-coded reference data, for the P-frame or B-frame, i.e. intercoding mode, processing. Without departing from the spirit and scope of Klein Gunnewiek's methodology, the second coding unit disclosed by Hannuksela can include Klein Gunnewiek's ENH-ENCODER 314 with switching mechanism to output the stored spare reference picture in intercoding mode for P-frame or B-frame.

It would have been obvious at the time the invention was made that, one of ordinary skill in the art would have been motivated to provide the data processing system Hannuksela made with the application of bitrate controlled scalable enhancement technique as taught by Klein Gunnewiek, not only it "can be used to improve error resilience in a transport system" in Hannuksela paragraph 124, line 1, but also "providing more efficient spatial scalable compression schemes which reduces the necessary bitrate of the encoder" in Klein Gunnewiek paragraph 9, line 3.

The Hannuksela and Klein Gunnewiek combination does not explicitly teach the frequency limitation.

Lee, in the same field of endeavor of video coding ("particularly, to a stream-based bitrate transcoder for MPEG bitstreams" in paragraph 3, line 2), teaches the importance of bitrate control "[b]itrate transcoding is a very powerful tool to adapt the dynamic bitrate changes in networked multimedia applications, especially in a heterogeneous networks environment" in paragraph 5, line 1. And "bitrate controller is used to overcome two potential problems with (1) reducing too many bits for dropping too many coefficients and (2) too few coefficients being dropped. A simple TM5 rate control is used to deal with these problems. It should be noted that the coefficient dropping starts with the non-zero high frequency coefficients towards the low frequency ones and DC coefficients are never selected for dropping" in paragraph 43, line 3. Thus, the bitrate controller can be used to limiting DCT frequency components during data processing. Without departing from the spirit and scope of Lee's methodology, the frequency limitation can apply to the stored data generated by Hannuksela's second coding unit.

It would have been obvious at the time the invention was made that, one of ordinary skill in the art would have been motivated to include the said data processing system of the Hannuksela and Klein Gunnewiek combination, with limited DCT frequency components as taught by Lee, not only this method can be "quickly adaptive to the dynamic changes of bitrate requirements for bandwidth-limited networked multimedia applications" in paragraph 44, line 7, but also a "consistent video quality may be maintained to some extent" in paragraph 23, line 9.

Regarding claim 8, pseudo-coded reference data generating unit performs coding on only direct-current components obtained by limiting said frequency components (as discussed in claim 7, "…and DC coefficients are never selected for dropping" in Lee paragraph 43, line 9. Thus, the Hannuksela, Klein Gunnewiek, and Lee combination teaches that other coefficients can be dropped and the DC components can be the only frequency components used).

Regarding claim 9, first coding unit and said pseudo-coded reference data generating unit use an MPEG-4 standard to code the image data ("The invention may be implemented in other video coding protocols. For example MPEG-4 defines so-called user data, which can contain any binary data and is not necessarily associated with a picture. The additional field may be added to these fields" in Hannuksela paragraph 136, line 1. See also "Most video compression standards support spatial scalability. FIG. 1 illustrates a block diagram of an encoder 100 which supports MPEG-2/MPEG-4 spatial scalability" in Klein Gunnewiek paragraph 5, line 1).

Regarding claim 12, the pseudo-coded reference data is used as a reference image when the image data coded in the intercoding mode by said first coding unit is decoded (discussed in claim 7 by Hannuksela that spare reference picture data, i.e. pseudo-coded reference data, used to represent the lost reference picture during intercoding decoding process).

Response to Arguments

a) Summary of Applicant's Remark:

The previous claim USC § 101 rejections should be withdrawn in view of the amendment.

Examiner's Response:

Examiner agrees, and the previous USC § 101 rejections are withdrawn.

b) Summary of Applicant's Remark:

"On the other hand, the pseudo-coded reference data of Claim 7 is occasional reference data generated from reference data used for encoding in an intracoding mode. Therefore, even if a frame of image data encoded in the intracoding mode cannot be normally decoded in a decoding process, the frame of image data can be decoded using the occasional reference data" at Remarks page 13, line 20.

Examiner's Response:

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (e.g., "if a frame of image data encoded in the intracoding mode cannot be normally decoded in a decoding process, the frame of image data can be decoded using the occasional reference data") are not recited in the rejected claim(s). For example, in Claim 7, last three lines: "to output a stream of data in which the pseudo-coded reference data is not stored in a case where the coding is performed in the intracoding mode". Although the claims are interpreted in light of the specification, limitations from

the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

c) Summary of Applicant's Remark:

"Thus, the enhancement data of the Klein Gunnewiek et al. reference is different from the pseudo-coded reference data of the claims of present application. Furthermore, the Klein Gunnewiek et al. reference fails to teach or suggest the feature of Claim 7 of "a pseudo-coded reference data generating unit configured to generate pseudo-coded reference by coding frequency components obtained by limiting frequency components which are stored in the storing unit" at Remarks page 13, bottom paragraph.

Examiner's Response:

Hannuksela teaches the first coding unit, second coding unit, and the stored reference data. Hannuksela also discloses the need of spare reference data for intercoding mode once a reference picture is lost. Klein Gunnewiek discloses the switching unit for intercoding mode. Lee discloses the frequency limited component. It is the combination of Hannuksela, Klein Gunnewiek, and Lee teaches the claimed subject matter. Refer to the rejections above for further discussion.

Furthermore, Applicant has not submitted claims drawn to limitations, which define the operation and apparatus of Applicant's disclosed invention in manner, which distinguishes over the prior art. As it is Applicant's right to claim as broadly as possible their invention, it is also the Examiner's right to interpret the claim language as broadly

as possible. It is the Examiner's position that the detailed functionality that allows for Applicant's invention to overcome the prior art used in the rejection, fails to differentiate in detail how these features of applicant's specification are. It is suggested that Applicant compare the original specification and claim language with the cited prior art used in the rejection section above to draw an amended claim set to further the prosecution. Examiner reiterates the need for the Applicant to more clearly and distinctly define the claimed invention.

Conclusion

5. Applicant's amendment is rejected in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eueng-nan Yeh whose telephone number is 571-270-1586. The examiner can normally be reached on Monday-Friday 8AM-4:30PM EDT.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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